

### **Remarks**

The Examiner acknowledged Applicants' election of Group IV claims and entered the previous amendment. In view of Applicants' amendment, the claims were assigned to new groups, with those claims corresponding to the elected group are now identified as Group I. Claims 47, 49, 50, 67-87, 126-134, and 149-166 were under consideration, and the remaining claims were withdrawn from consideration. All claims stand rejected on the grounds summarized below.

### **Summary of and support for claim amendments**

With entry of the amendments, claims 47-166 are cancelled and claims 167-203 are newly added. Claims 167-203 all are believed to be Group I claims. Applicants respectfully submit that no new matter has been added by these amendments and that the amendments do not necessitate an additional search.

Support for the claims may be found at least at the following parts of the specification. Support for claims 167-169 may be found at least at page 6, lines 24-28 (isolated polynucleotide), and page 14, lines 20-22 (amino acid residues 220 to 749 of SEQ ID NO: 2). Claim 168 is further supported at Figure 1 of the specification (SEQ ID NO: 2). Claim 169 is further supported at page 11, lines 12-14 (nucleotides 660 to 2250 of SEQ ID NO: 1).

Claims 170-172 are supported at least at page 6, lines 24-28 (isolated polynucleotide), page 14, lines 11-16 (UDP-glucose binding domain), and Figure 8 of the specification (SEQ ID NO: 5). Claim 172 is supported by SEQ ID NO:4, SEQ ID NO:5, and at page 11, lines 7-9 (the translation product of bases 2-3244 of SEQ ID NO:4 corresponds to the polypeptide sequence of SEQ ID NO:5).

Claims 173-175 are supported at least at page 23, lines 5-8 (transgenic plant cell), page 10, lines 3-8 (exogenous polynucleotide), and page 14, lines 20-22 (amino acid residues

220 to 749 of SEQ ID NO: 2). Claim 174 is further supported at page 6, lines 9-10 (plant). Claim 175 is further supported at page 22, line 23 (tree).

Claims 176-178 are supported at least at page 23. Lines 5-8 (transgenic plant cell), page 10, lines 3-8 (exogenous polynucleotide), page 14, lines 11-16 (UDP-glucose binding domain), and Figure 8 of the specification (SEQ ID NO: 5). Claim 177 is further supported at page 6, lines 9-10 (plant). Claim 178 is further supported at page 22, line 23 (tree).

Claims 179-180 are supported at least at page 9, lines 27-30 (vector), page 6, lines 16-23 (polynucleotide), page 14, lines 20-21 (amino acid residues 220 to 749 of SEQ ID NO: 2), page 20, lines 14-15 (operably associated with a promoter), page 9, lines 3-22 (promoter), and page 20, lines 20-26 (promoters functional in plants). Claim 180 is further supported at page 22, lines 23-33 (plant cell).

Claims 181-182 are supported at least at page 9, lines 27-30 (vector), page 6, lines 16-23 (polynucleotide), Figure 8 of the specification (SEQ ID NO: 5), page 9, lines 3-22 (promoter), and page 20, lines 20-26 (promoters functional in plants). Claim 182 is further supported at page 22, lines 23-33 (plant cell).

Claims 183-192 are supported at least at page 20, line 8-22, line 11 (method of producing transgenic plant cell), page 10, lines 3-8 (exogenous polynucleotide), and page 14, lines 11-22 (UDP-glucose binding domain of a cellulose synthase). Claims 184-185 are further supported at Figure 1 of the specification (*Populus* cellulose synthase). Claim 186 is further supported at page 14, lines 20-21 (amino acid residues 220 to 749 of SEQ ID NO: 2). Claim 187 is further supported at page 20, lines 14-15 (operably associated with a promoter). Claim 188 is further supported at page 11, lines 12-14 (nucleotides 660 to 2250 of SEQ ID NO: 1). Claims 189-190 are further supported at Figures 7-8 of the specification (*Arabidopsis* cellulose synthase). Claims 191-192 are further supported at page 20, lines 27-36 (sense orientation and anti-sense orientation).

Claims 193-199 are supported at least at page 20, line 8-22, line 11 (method of producing transgenic plant cell), page 10, lines 3-8 (exogenous polynucleotide), and page 14, lines 20-21 (amino acid residues 220 to 749 of SEQ ID NO: 2). Claim 194 is further supported at Figure 1 of the specification (SEQ ID NO: 2). Claim 195 is further supported at page 11, lines 12-14 (nucleotides 660 to 2250 of SEQ ID NO: 1). Claim 196 is further supported at page 11, lines 6-7 (nucleotides 69 to 3005 of SEQ ID NO: 1). Claim 197 is further supported at Figure 1 of the specification (SEQ ID NO: 1). Claims 198-199 are further supported at page 20, lines 27-36 (sense orientation and anti-sense orientation).

Claims 200-203 are supported at least at page 20, line 8-22, line 11 (method of producing transgenic plant cell), page 10, lines 3-8 (exogenous polynucleotide), and Figure 8 of the specification (SEQ ID NO: 5). Claim 201 is further supported by SEQ ID NO:4, SEQ ID NO:5, and at page 11, lines 7-9 (the translation product of bases 2-3244 of SEQ ID NO:4 corresponds to the polypeptide sequence of SEQ ID NO:5). Claims 202-203 are further supported at page 20, lines 27-36 (sense orientation and anti-sense orientation).

#### **Objections to Sequence Listing**

The application is objected to for failing to comply with the requirements of 37 C.F.R. 1.821 through 1.825. Applicants submit a substitute paper copy of the Sequence Listing and a substitute copy of the Sequence Listing in computer readable form (on a 3.5" diskette prepared in PatentIn version 3.1). In accordance with 37 C.F.R. 1.821(g), the undersigned avers that the content of the computer readable form of the Sequence Listing provided on the enclosed 3.5" diskette is the same as the Sequence Listing in written form, and that the submission includes no new matter.

Applicants respectfully submit that the substitute sequence listing of corrections to the specification and sequence listing overcomes the objection, and request that the objection be withdrawn.

### **Claim Objections**

Claims 68, 126 and 149 stand objected to due to various informalities and redundancies in the claim language. Applicants respectfully submit that the cancellation of these claims renders the objections moot, and therefore, request that they be withdrawn.

### **Rejections Under 35 U.S.C. § 112**

Claims 47, 49-50, 73-81 and 154-161 were rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

Claims 47, 49-50, 73-81 and 154-161 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for recitation of the phrase “truncated nucleotide sequence.”

Claims 47, 49-50, 67-87, 126-134 and 149-166 were rejected under 35 U.S.C. § 112, first paragraph, because the specification, while being enabling for the isolated nucleotide sequences of SEQ ID NO: 1 and 4, nucleotide sequences encoding SEQ ID NO: 2 and 5, a vector and transgenic plants comprising the nucleotide sequences, and a method of transforming plants with the nucleotide sequences, does not reasonably provide enablement of the claims.

Claims 47, 49-50, 67-87, 126-134 and 149-166 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Office action asserts that the claims contain subject matter not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Applicants respectfully submit that the cancellation of the claims renders the rejection of claims under 35 U.S.C. 112 moot, and therefore, request that the rejections be withdrawn.



Rejections Under 35 U.S.C. § 102(b)

Claims 47, 49-50, 67-87, 126-134, and 149-166 are rejected under 35 USC § 102(b) as being anticipated by Arioli *et al.* (WO 98/00549). Claims 47, 49-50, 67-87, 126-134, and 149-166 are rejected under 35 USC § 102(b) as being anticipated by Stalker *et al.* (WO 98/18949). Applicants respectfully submit that the cancellation of these claims renders the rejection moot, and therefore, request that it be withdrawn.


New Claims

Applicants have added 37 new claims directed to the elected group – Group I, drawn to an isolated nucleotide sequence having specific sequences encoding cellulose synthase, transgenic plants comprising the nucleotide sequence, and a method of using the nucleotide sequence. Applicants' new claims are directed to nucleotide sequences of SEQ ID NO: 1 and 4 and nucleotide sequences encoding SEQ ID NO: 2 and 5, which the Examiner has indicated are free of the prior art; transgenic plants comprising those sequences, and methods of using those sequences.

In view of the foregoing, Applicants respectfully submit that the claims as amended are in condition for allowance. The Examiner is invited to contact the undersigned by telephone should any issues remain with respect to the application.

No fee is believed due in connection with this submission. Please charge or credit Deposit Account No. 13-3080 with any shortage or overpayment of the above fee. A duplicate of this sheet is enclosed.

Respectfully submitted,

  
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